SOME NEW WESTERN NORTH CAROLINA MOSS-MITES.

By Arthur Paul Jacot,
Northeastern Forest Exp. Station, New Haven, Conn.

The following species and subspecies of Oribatidae were procured while making a census of the fauna of the litter of hardwood forests chiefly in the Bent Creek watershed, Buncombe County, in the mountains of North Carolina. The types are to be deposited at the United States National Museum.

Camisia segnis amicus, subsp. nov.

Differs from the species (9, p. 38, figs. 1A, 1B) in that notogastral bristles B1 (D2 of Grandjean) are on same transverse plane as B3 (D3), thus spacing B1, B2 and C1 (E1) subequally; middle bristle of parasterna I is close to center of plate instead of near posterior edge; pseudostigmatic organs are so short that only the head extends beyond lateral edge of pseudostigma; notogastral bristles F3 (Op2) extend at least to insertion of F2 (Op1), and bristles E3 (K1) are relatively much longer, bearing at least a dozen barbs.

Cotypes: Nine specimens from litter of thirty-year-old white pine plantation on Biltmore estate on Asheville-Brevard road, about eight miles from Asheville, N. Car.; taken October 8th, 1934, slide 34 F9.2–15.

Platynothrus bicarinatus, sp. nov.

As *P. peltifer* but the two mesal carina of notogaster absent; notogastral bristles much longer; animal larger: total length of body 0.67 mm., greatest breadth 0.37 mm.

Cotypes: Twenty-two specimens from litter of Poplar Cove, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken July 1st, 1935, slide 35F5.1–15.

Oribata tectopediosa, sp. nov.

Differs from all other species of the genus in having tectopedia II strongly and elaborately sculptured by deep, closely crowded pock-marks. There are also weak, angular areolations on the cephaloprothorax midway between interlamellar and lamellar bristles and down the sides to rostral bristles. Pseudostigmatic organs setaceous, distal end flagellate, with two bends (forming an open shepherd's crook). Anal and genital apertures well spaced; anterior end of anal covers strongly produced as a lobe; trochanters (coxae) I to III each with a long bristle. Total length of body of males 0.33 mm., of females 0.37 mm.

Cotypes: Twenty-five specimens from oak litter of ridge above Poplar Cove, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken July 15th, 1935, slide No. 35F6.3–17.

Oppia minus simplex, subsp. nov.

Differs from the species (12, p. 48, pl. 3, fig. 11) in the absence of the crescentic ridge anterior to interlamellar bristle spurs. I find twenty notogastral bristles. Paoli undoubtedly overlooked that on anterolateral edge of notogaster (directly posteriad of the pseudostigmata). The other two are at posterior end of abdomen. Length of types 0.18 to 0.19 mm.

Cotypes: Forty-two specimens from Andropogon sod of overgrazed pasture on Asheville-Brevard road, twelve miles from Asheville, N. Car.; taken October 23d, 1934, slide 34F11Op3.

Oppia elongata, sp. nov.

Notogastral bristles very fine; sculpturing of cephaloprothorax confined to basal portion; pseudostigmatic organs clavate, head fusiform, ciliate; tectopedia I developed as a conical lobe projecting laterad between insertions of legs I and II, not at all curved forward. This is the smallest tectopedia I I have yet seen in this genus and is immediately diagnostic. Interlamellar bristles short, fine, curved anteriad, distant from posterior edge of cephaloprothorax, in lateral aspect appearing to spring from distal end of a low ridge; total length of body 0.3 mm.

Cotypes: Ninety-seven specimens from litter of mixed hardwoods, Rocky Cove, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken September 8th, 1934, slide 34F1–14.

Oppia quadricarinata ferrumequina subsp. nov.

Differs from the species (11, p. 393, pl. 7; 11a, p. 385, pl. 31, figs. 13–15) in that notogastral ridge continues backward and mesad, joining to form a horseshoe.

Cotypes: Forty specimens from Liriodendron-Fraxinus litter of a south cove, Shut-in-Ridge, Bent Creek Exp. Forest, N. Car.; taken June 17th, 1935, slide 35F4.2–7.

Autogneta longilamellata amicus, subsp. nov.

Differs from the species (11, p. 391; 11a, p. 392, pl. 28, figs. 13–15) in that interlamellar bristle ridges are reduced to slender, straight bars lying along posterior edge of prothorax. Both Michael and Paoli figure the European form as having these ridges shaped like an ? point with the interlamellar bristle insertion included by the ridge.

Cotypes: Twenty-five specimens from fern litter (possibly *Adiantum pedatum*), Poplar Cove, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken July 1st, 1935, slide 35F5.3–9.

Eremobelba leporosus leporoides, subsp. nov.

Differs from the species (10, p. 225, pl. 15, fig. 6) from South and Central America, in that notogaster is much more slender, and its bristles are differently

arranged; and from *E. gracilior* (3 p. 10; 3a, pl. 21, fig. 74) from "North America" (probably Columbia, Mo., possibly from Lake City, Fla.) in position of notogastral bristles, the stout burred interlamellar bristles, and in the notogastral sculpturing which is granular-tuberculate arranged to form a net-pattern. Total length of body 0.37 mm., total breadth 0.18 mm., length of notogaster 0.24 mm.

Cotypes: Fifty-two specimens from Andropogon sod, top of Shut-in-Ridge, Bent Creek Exp. Forest, N. Car.; taken May 8th, 1935, slide 34F34–36.

Eremobelba leporosus flagellaris, subsp. nov.

Differs from genotype in having smooth pseudostigmatic organs and longer notogastral bristles, the posterior ones being crispate. Differs from *E. gracilior* in length, shape and position of notogastral bristles. Total length of body 0.43 mm., total breadth 0.247 mm., length of notogaster 0.26 mm.

Cotypes: Sixty-two specimens from "white" oak litter, old-growth stand, compartment 5, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken June 11th, 1935, slide 35F3X–26.

Suctobelba grandis obtusa, subsp. nov.

Differs from species (12, p. 78, pl. 4, fig. 32) in that distal end of pseudostigmatic organs is blunt, obtuse, not pointed and not terminated by a curved bristle (flagelliferous).

Cotypes: Fifteen specimens from litter of thirty-year-old white pine plantation on Biltmore estate on Asheville-Brevard road about eight miles from Asheville, N. Car.; taken October 8th, 1934, slide 34F9.3–20.

Dameolus laciniatus americanus, subsp. nov.

Differs from the species (2, p. 236; 12, p. 82, pl. 5, figs. 35, 51) in that the pseudostigmatic organs are long, sinuous, head elongate fusiform, *compressed*, tapering to a point. Paoli figured the organ of the American form (4, p. 91, "Nota"). The interlamellar bristle ridge extends beyond the bristles to anterior edge of pseudostigmata, *usually* as a strongly developed ridge; rostrum broad; rostral and lamellar bristles longer, curved.

The notogaster and the arrangement of its twenty-two bristles is identical to that of specimens from Regensburg (Bavaria).

Cotypes: Thirty-seven specimens from dogwood (Cornus) litter of thirty year old-field woods, laboratory grounds, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken September 20th, 1934, slide 34F4.3–33.

By its mouth parts and the development of the rostral area, this genus is closely related to Suctobelba, perhaps more specialized.

Metrioppia serrata atlantica, subsp. nov.

Differs from the species (14, p. 185, figs. 4–6) in that bristles ad3 are on transverse plane of anterior edge of aperture; there are four to five minor camerostomal serrations in addition to the distal; abdomen relatively much shorter; notogastral bristles differently arranged.

Cotypes: Thirty-nine specimens from litter of thirty-year-old white pine plantation on Biltmore estate, Asheville-Brevard road about eight miles from Asheville, N. Car.; taken October 8th, 1934, slide 34F9.2–32.

Carabodes gibbiceps clavata, subsp. nov.

Differs from the species (5, p. 330) in that pseudostigmatic organs are clavate, copiously scabrate, the head slit so as to be cleft along one side.

Cotypes: Twenty-five specimens from short-leaf pine litter of isolated old-field stand on Asheville-Brevard road, two miles south of Bent Creek, Buncombe Co., N. Car.; taken October 15th, 1934, slide 34F10.3R4.

Cepheus mirabiloides, sp. nov.

Resembling *C. mirabilis* (1, p. 10) but notogastral bristles much shorter, those of posterior edge horizontal, more widely spaced; distal ends of lamellae not meeting, the bristles subapical; total length of body of males 0.53 mm., of females 0.6 mm.

Cotypes: Eight specimens from "white" oak litter, old growth stand, compartment 5, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken June 11th, 1935, slide 35F3X–14.

Rostrozetes foveolatus appalachicola, subsp. nov.

Differs from the species (13 p. 85, figs. 6, 7), in having twenty-two notogastral bristles and much coarser sculpturing on the genital and anal covers. The pseudostigmatic organ head is spiny, the spines being arranged in four longitudinal rows.

Cotypes: One hundred six specimens from dogwood (Cornus) litter of thirty year old-field woodland, laboratory grounds, Bent Creek Exp. Forest, N. Car.; taken September 20th, 1934, slides 34F4.3–51 and –52.

Anachipteria achipteroides australoides, subsp. nov.

Differs from the species in having pseudostigmatic organs of *A. australis* (7, p. 160, pl. 3, figs. 40, 41) which is regarded as a species. The lamellae are those of *A. achipteroides* (6, p. 119, pl. 8, fig. 16).

Cotypes: Eighteen specimens from Liriodendron-Fraxinus litter, south cove, Shut-in-Ridge, Bent Creek Exp. Forest, N. Car.; taken June 17th, 1935, slide 35F4X–31.

Achipteria armatum spinosum, subsp. nov.

Differs from the species (1, p. 9) in having no notogastral bristles; no anteroventral angle on pteromorphae; a spine on tectopedia II; and different parasternal bristles. The lamellae have a lateral cusp but it is invisible in true dorsal aspect.

Cotypes: Ten specimens from soil sample, Rocky Cove, Bent Creek Exp. Forest, Buncombe Co., N. Car.; taken April 25th, 1935, slide 34F33–29.

Microzetes auxiliaris appalachicola, subsp. nov.

Differs from the species (8) in having only two pairs of notogastral plicae, and the mesal edge of lamellae extending much further posteriad and laterad so that they join each other almost at anterior edge of notogaster. Arrangement of bristles of venter also differs.

Cotypes: Forty-nine specimens from mossy interspaces of Andropogon sod, old-field, Case Place, Bent Creek Exp. Forest, N. Car.; taken February 6th, 1935, slide 34F24–3.

In 1936 (May 30), p. 77 Grandjean showed that *Notaspis humeralis* is a Trichoribates, and renames the *Humerobates humeralis* of authors, entirely ignoring Banks' *Oribata arborea* and my paper on this species. Thus *Humerobates rostrolamellatus* Grandjean 1936 is a subspecies of *Oribata arborea* Banks 1895.

Sellnick made *Notaspis humeralis* Hermann the type of Humerobates. Since *N. humeralis* Herman is not *Oribata arborea* Banks, the latter species remains without generic designation. I propose the name

BANKSINUS, gen. nov.

Type: *Oribata arborea* Banks 1895, p. 7 (see Jacot, A Common Arboreal Moss Mite, Occ. Papers Bost. Soc. Nat. Hist., vol. 5, pp. 369–382, pl. 19).

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For further details see my Annotated Bibliography of the Moss Mites.

NESTS OF LEAF-CUTTING BEES IN DRIED FIGS.

By Heber C. Donohoe,

Division of Fruit Insects, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

During the fall of 1935 several inquiries about leaf-cutting bees in Calimyrna figs were received at the Dried Fruit Insect Laboratory, Bureau of Entomology and Plant Quarantine, at Fresno, Calif.

The bees construct cylindrical cases within the cavity of a fig by means of leaf segments carried in through the eye, provision these cases with pollen, and seal each tube with a circular cap of leaf segments. As this foreign material partially or entirely fills the fig cavities, the figs so provisioned are of cull grade.

A grower in the Figarden district, near Fresno, directed the writer to the portion of his fig acreage from which several figs showing this injury had come. This part of the orchard lies on both the east and west sides of an irrigation canal. A search of the area October 1 and 3, revealed that the leaves used in nest construction were predominantly or entirely those of a species of *Polygonum* (knotweed) growing as scattered plants on the ditch banks close by the water's edge. The edges of many leaves of these plants were riddled with smooth, cut-out areas typical of the work of leaf-cutting bees, while none of the other wide variety of wild vegetation along the ditch had been so injured. A single willow tree growing in a nearby field showed slight, but mainly irregular, cut-out sections, some of which may have been caused by bees. Since the leaves were being attacked by sphinx caterpillars it is more probable that they, or grasshoppers, were responsible.

The leaves of *Polygonum* and the segments from several nests were compared microscopically by C. H. Quibell, systematic botanist at Fresno State College, and the writer, and found to be identical.

On October 1 and 3 no bees were found in the act of cutting segments or entering figs, but on the latter date two species of Megachilidae were present along the ditch banks in some